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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,247	08/31/2001	Seiichiro Higashi	9319T-000281	1294

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EXAMINER
SOWARD, IDA M

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 12/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/945,247	HIGASHI ET AL.	
	Examiner	Art Unit	
	Ida M Soward	2822	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This Office Action is in response to Applicants' amendment filed September 30, 2002.

Specification

The objection to the specification has been withdrawn due to the amendment filed.

Claim Objections

The objection to claims 2-6 and 9-14 has been withdrawn due to the amendment filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 5-8 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (5,970,384) in view of Grill et al. (US 2002/0037442 A1) and Yamazaki et al. (US 2002/0034863 A1).

Yamazaki et al. (5,970,384) teach a method for the fabrication of a field-effect transistor comprising the steps of: forming a semiconductor layer **704** serving as an active layer on a substrate **701**; forming a stage gate insulating film **705** on the semiconductor layer; heat treating the gate insulating film in an N_2O atmosphere (col. 15, lines 7-37) (Figure 7E, col. 12, lines 40-67). Yamazaki et al. (5,970,384) further teach the gate insulating film formed by plasma CVD method using a TEOS gas (col. 5, lines 45-58). However, Yamazaki et al. (5,970,384) fail to teach setting the substrate temperature at no higher than 100°C and heat-treating the gate insulating film in an atmosphere containing water. Grill et al. teach setting the substrate temperature at between about 25°C and about 400°C, which is in the range of no higher than or no less than 100°C. (page 2, paragraph [0022]). Yamazaki et al. (US 2002/0034863 A1) teach heat-treating in an atmosphere containing water (page 13, paragraph [0269]). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method for the fabrication of a field-effect transistor of Yamazaki et al. (5,970,384) with the substrate temperature of Grill et al. and the atmosphere containing water of Yamazaki et al. (US 2002/0034863 A1) to obtain a film substantially free of crystal grain boundaries.

Claims 3-4 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (5,970,384), Grill et al. (US 2002/0037442 A1) and Yamazaki et al. (US 2002/0034863 A1) as applied to claims 1 and 7-8 above, and further in view of An et al. (US 6,245,618 B1).

Yamazaki et al. (5,970,384), Grill et al. and Yamazaki et al. (US 2002/0034863 A1) teach all mentioned in the rejection above. However, Yamazaki et al. (5,970,384), Grill et al. and Yamazaki et al. (US 2002/0034863 A1) fail to teach conducting a process while cooling a substrate. An et al. teach conducting a process while cooling a substrate (col. 1, lines 46-56). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method for the fabrication of a field-effect transistor of Yamazaki et al. (5,970,384), the substrate temperature of Grill et al. and the atmosphere containing water of Yamazaki et al. (US 2002/0034863 A1) with the cooling a substrate of An et al. to reduce junction leakage current.

Response to Arguments

Applicant's arguments filed 9-30-02 have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for combining the method for fabrication of a field-effect transistor of Yamazaki et al. (5,970,384) & (US 2002/0034863 A1) and An et al. and the substrate temperature setting of Grill et al. can be found in the abstract of Yamazaki et al. (US 2002/0034863 A1) and in col. 1, lines 14-30 of An et al.

In response to the arguments concerning teaching away, the elements of the claimed invention are taught in combination by the aforementioned references with motivation to do so and the nature of the combined teachings is highly relevant, and must be weighed in substance.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 703-305-3308. The examiner can normally be reached on Monday - Thursday, 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ims
November 22, 2002

AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800